N° 3997 A.D. 1915

Date of Application, 13th Mar., 1915

Complete Specification Left, 21st July, 1915—Accepted, 9th Sept., 1915

PROVISIONAL SPECIFICATION.

Improvements in or relating to Electrically Driven Radial-arm Drilling and the like Machines.

I, HENRY WILKINSON, of 125, Arthington Terrace, Bradford Road, Stanningley, near Leeds, Electrical Engineer, do hereby declare the nature of this invention to be as follows:—

This invention relates to electrically driven radial-arm drilling and the like machines, and particularly to machines of the kind wherein the revoluble head of each machine is fitted with an electric motor by which the drilling or other tool carried by the said head is driven.

In these machines, the drill or other tool is required to be lubricated with water; and as previously constructed, the water has been supplied thereto from the main or other source by way of pipes laid externally of the machine, while the cables of the electric motor have also been situated externally of the machine, with the result that these previously proposed arrangements have materially interfered with the rotative action of the radial arm or revoluble head of the machine.

Now the object of this present invention is to so arrange the water feed to the drill and the cables of the electric motor as to enable the radial arm or revoluble head of the machine to be completely rotated in either direction at will without in any way interfering with the water and power supplies.

According to my invention, the water supply from the main or otherwise is supplied by means of a pipe passed upward through the hollow stationary column of the machine on which the radial arm or tool-carrying head revolves, and fixed to the upper part of the stationary column and extending above the revoluble head is a vertical tube up which the water pipe is prolonged with its discharge end conducted out through the side thereof and led into a circular tank mounted on suitable brackets carried by the revoluble head of the machine, while above the tank and externally on the upper end of the fixed vertical tube are secured suitable electric contacts to which the cables of the electric motor are attached and then passed down the fixed vertical tube and forward down the hollow stationary column of the machine and out to the main or otherwise. The cables may be merely passed down adjacent to the water pipe or they may be contained in a separate pipe, and the electric contacts carried on the upper end of the vertical tube may be fitted with brushes mounted on a rod carried by a bracket situated on the revoluble head of the machine so as to rotate therewith along with the water tank, the said contacts being coupled up to a starting switch on the machine and thence to the motor, or otherwise as may be found most convenient.

The water supplied to the tank situated above the revoluble head of the machine may be controlled by means of a float valve situated within the said tank, and the water from the tank would be conducted to the drill by suitable delivery pipes carried on the revoluble head; and it will be seen that as the water supply tank is carried directly by the revoluble head the pipe connections therefrom will not interfere with the rotation of the said head, and further,

[*Price 6d.*]

that by supplying the water to the tank by means of a pipe passed up by way of the hollow column of the machine and also by carrying the electric cables up by way of the same hollow column, no interference is given to the movement of the revoluble head which is thus free to be rotated completely in either direction of rotation as may be desired without endangering the water supply to the drill or electric power to the motor.

Dated this 13th day of March, 1915.

BREWER & SON,
33, Chancery Lane, London, and
7, East Parade, Leeds,
Patent Agents for the Applicant.

COMPLETE SPECIFICATION.

Improvements in or relating to Electrically Driven Radial-arm Drilling and the like Machines.

I, HENRY WILKINSON, of 125, Arthington Terrace, Bradford Road, Stanningley, near Leeds, in the County of York, Electrical Engineer, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention relates to electrically driven radial-arm drilling and the like machines, and particularly to machines of the kind wherein the revoluble head of each machine is fitted with an electric motor by which the drilling or other tool carried by the said head is driven.

In these machines, the drill or other tool is required to be lubricated with water; and as previously constructed, the water has been supplied thereto from the main or other source by way of pipes laid externally of the machine, while the cables of the electric motor have also been situated externally of the machine, with the result that these previously proposed arrangements have materially interfered with the rotative action of the radial arm or revoluble head of the machine.

Now the object of this present invention is to so arrange the water feed to the drill and the cables of the electric motor as to enable the radial arm or revoluble head of the machine to be completely rotated in either direction at will without in any way interfering with the water and power supplies.

According to my invention, the water supply from the main or otherwise is supplied by means of a pipe passed upward through the stationary hollow column of the machine on which the radial arm or tool-carrying head revolves, and fixed to the upper part of the stationary column and extending above the revoluble head is a vertical tube up which the water pipe is prolonged with its discharge end conducted out through the side thereof and led into a circular tank mounted on suitable brackets carried by the revoluble head of the machine, while externally on the fixed vertical tube are secured suitable electric contacts to which the cables of the electric motor are attached and then passed down the fixed vertical tube and forward down the hollow stationary column of the machine and out to the main or otherwise. The cables may be merely passed down adjacent to the water pipe or they may be contained in a separate pipe, and the electric contacts carried on the fixed vertical tube may be fitted with brushes mounted on a rod carried by a bracket situated on the revoluble head of the machine so as to rotate therewith, along with the water tank, the said contacts being coupled up to a starting switch on

the machine and thence to the motor, or otherwise as may be found most convenient.

The water supplied to the tank situated above the revoluble head of the machine may be controlled by means of a float valve situated within the said tank, and the water from the tank would be conducted to the drill by suitable delivery pipes carried on the revoluble head; and it will be seen that as the water supply tank is carried directly by the revoluble head the pipe connections therefrom will not interfere with the rotation of the said head, and further, that by supplying the water to the tank by means of a pipe passed up by way of the hollow column of the machine and also by carrying the electric cables up by way of the same hollow column, no interference is given to the movement of the revoluble head which is thus free to be completely rotated in either direction of rotation as may be desired without endangering the water supply to the drill or electric power to the motor.

In order that the invention may be clearly understood, I will proceed to describe the same with reference to the example of construction shown in the accompanying drawings, wherein:—Fig. 1 is a side elevation of an electrically driven radial-arm drilling machine, having the water feed to the drill and the cables of the electric motor arranged in accordance with my invention; and Fig. 2 is a part sectional side elevation of a portion of the same machine, drawn to an enlarged scale.

Referring to the drawings, the machine consists of the usual stationary hollow column 1 provided at its upper part with the revolubly mounted radial arm or tool-carrying head 2 which is fitted with a bracket 3 carrying the electric motor 4 for driving the drilling tool 5, while the terminal box 6 of the said motor 4 is connected by the cables 7 to the starting switch 8 fixed on the revoluble head 2; all of ordinary construction and which operate in the known manner.

According to my invention, the water supply from the main is fed to the machine by way of a pipe 9 passed upward through the stationary hollow column 1, and fixed to the upper part of the latter and extending upwardly above the revoluble head 2 is a vertical tube 10 up which the water pipe 9 is prolonged with its discharge end terminating near a side outlet pipe 11 leading into a circular tank 12 encircling the fixed vertical tube 10 and which is mounted on the revoluble head 2 of the machine through the medium of fixing supports or pillars 13, while above the tank 12 and on the external upper end of the fixed vertical tube 10 are secured electric contacts 14 having cables 15 attached thereto and which are passed down within the fixed vertical tube 10 and forward down the stationary hollow column 1 of the machine and out to the main. The electric contacts 14 carried on the upper end of the fixed vertical tube 10 are fitted with brushes 16 mounted on a rod 17 carried by a bracket 18 fixed to the tank 12 of the revoluble head 2 so as to rotate therewith, the said brushes 16 being coupled up by cables 19 to the starting switch 8 of the machine.

The water supplied to the tank 12 by way of the outlet pipe 11 is controlled by a float valve 20 situated within the said tank, and the water is conducted from the tank 12 to the drilling tool 5 by means of a pipe 21 provided with a delivery nozzle 22, a portion of the said pipe 21 being of a flexible nature and being passed over pulleys 23 and controlled by a loose weight 24 so as to allow of the usual horizontal movements of the tool carrier on the revoluble head 2.

It will be seen that as the water supply tank 12 is carried directly by the revoluble head 2 of the machine, the connections of the delivery pipe 21 will not interfere with the rotation of the said head 2; and further, that by supplying the water to the tank 12 by means of the pipe 9 passed up by way of the stationary hollow column 1 of the machine and also by carrying the electric cables 15 by way of the same hollow column 1, no interference occurs to the movements of the revoluble head 2 which is thus free to be completely rotated

in either direction of rotation as may be desired without endangering the water supply to the drill 5 or electric power to the motor 4.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:—

1. In electrically driven radial-arm drilling and the like machines; supplying the water to feed the drill or other tool by way of a pipe passed up the stationary hollow column of the machine and conducting the cables of the electric motor by way of the same hollow column to enable the radial arm or revoluble-head of the machine to be completely rotated in either direction at will without interference.

2. In a machine according to the preceding claim; fixing on the upper part of the stationary hollow column an upstanding tube within which the water supply pipe is prolonged to an outlet pipe leading into a tank mounted on the revoluble head, and delivering the water from the said tank to the drill or other tool by means of a connected pipe, substantially as described.

3. In a machine according to the preceding claims; mounting on the fixed upstanding tube electric contacts having their cables passed down within the latter and forward down the stationary hollow column, and fitting the said contacts with brushes carried on the revoluble head and being connected by cables to the starting switch or otherwise, substantially as described.

4. In an electrically driven radial-arm drilling machine according to the preceding claims; arranging the water feed to the drill and the cables of the electric motor substantially in the manner described with reference to the accompanying drawings.

Dated this 21st day of July, 1915.

BREWER & SON,
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7, East Parade, Leeds,
Patent Agents for the Applicant.

Redhill: Printed for His Majesty's Stationery Office, by Love & Malcomson, Ltd.—1915.

A.D. 1915. March 13. No. 3997.
WILKINSON'S Complete Specification.

Fig. 1.

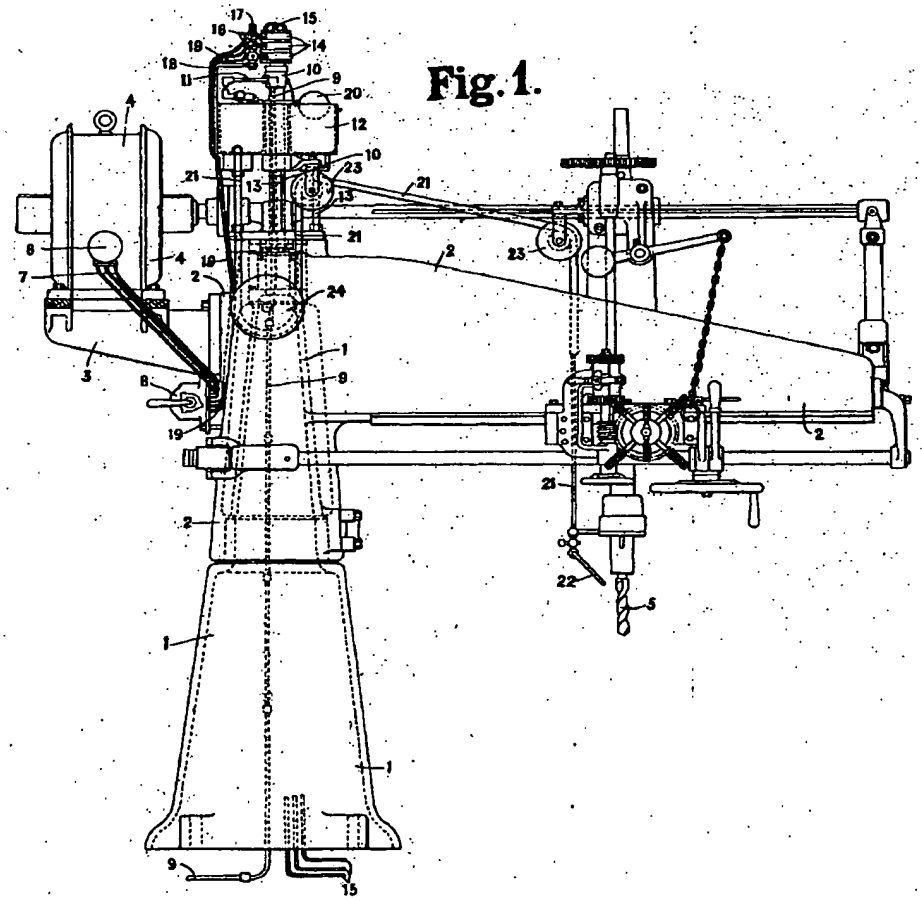

Fig. 2.

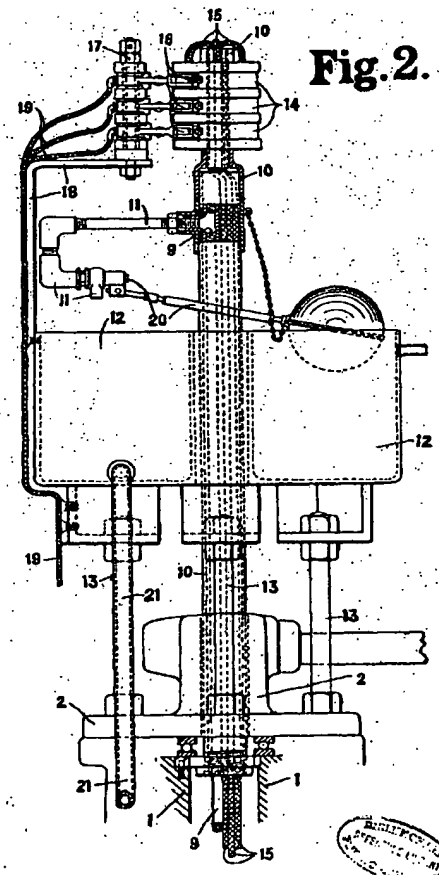

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Fig. 1.

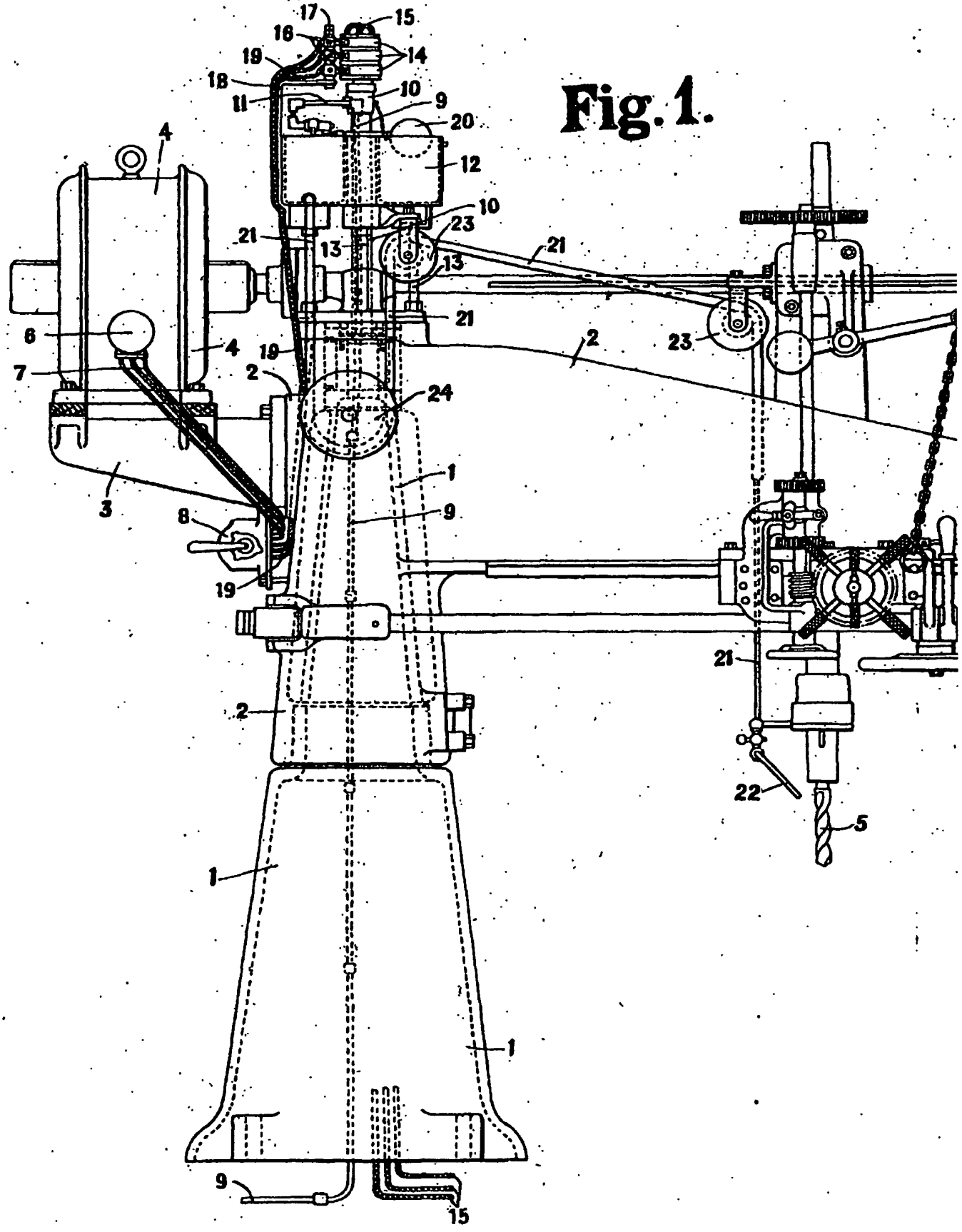

Fig.2.